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EC57-122 Wheat Kernel Damage

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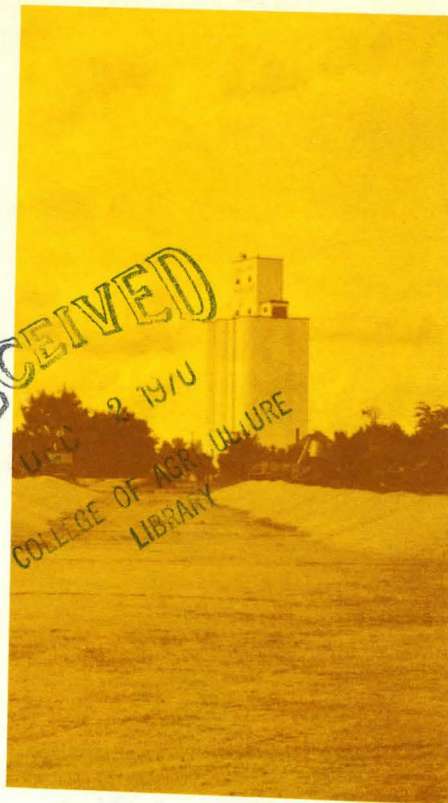
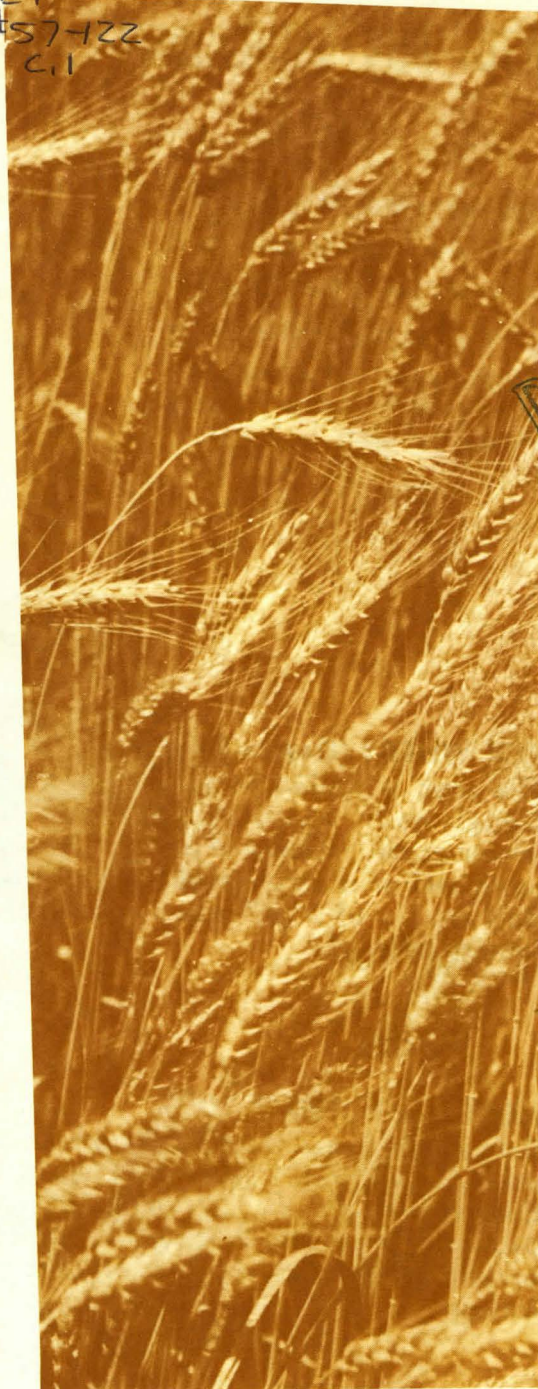
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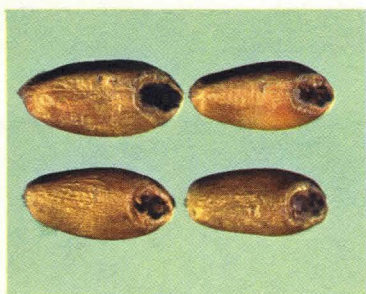
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**WHEAT
KERNEL
DAMAGE**

PRINCIPAL WHEAT KERNEL DAMAGES



SICK WHEAT (Germes Shaven)

This term is applied to a type of storage damage usually associated with brown discolored germs, evidence of dead deteriorated germs and of other damage to the kernel. Most samples of "sick" wheat usually have a musty odor.



HEAT DAMAGED

Kernels and pieces of kernels of wheat and other grains which have been distinctly discolored to a mahogany or black color, damaged by external heat or as a result of heating by fermentation, are heat damaged kernels.



WEEVIL OR INSECT BORED

Kernels which have been bored internally by insects are damaged kernels. Kernels that are otherwise sound, but which are only slightly eaten by insects or from which only the germ has been removed by insects, are classified as sound kernels. Wheat showing material evidence of insect infestation may carry a sour odor.



BLACK-TIP FUNGUS (Blight)

Kernels that are affected by black tip fungus to the extent that the fungus growth extends on the germ and into the crease of the kernel, and kernels that are distinctly affected by white, pink, gray-black or green mold are damaged kernels.



SPROUTED

Kernels which have the germ end broken open from germination, and kernels which have sprouted, including the kernels from which the sprouts have been broken off, are sprout damaged kernels.



BLIGHT AND SCAB

Kernels that are affected by blight and scab show the following: The bran coat is broken open; kernels show evidence of mold, or other diseased or damaged condition; kernels have a dull, lifeless, and chalky appearance (so-called tombstone) as a result of disease; and also such kernels have a moldy appearance of the germ or have mold in the crease of the kernel.



GREEN (Immature)

Kernels that are distinctly green in color are damaged kernels.



FROSTED

Kernels which are green or are discolored black or brown, or which have FROST blisters extending around the back of the kernels and into the crease; or which have the BRAN coat partially flaked off; or which have a distinctly wax-like or candied appearance, shall be damaged kernels.



SMUT (Special Grade)

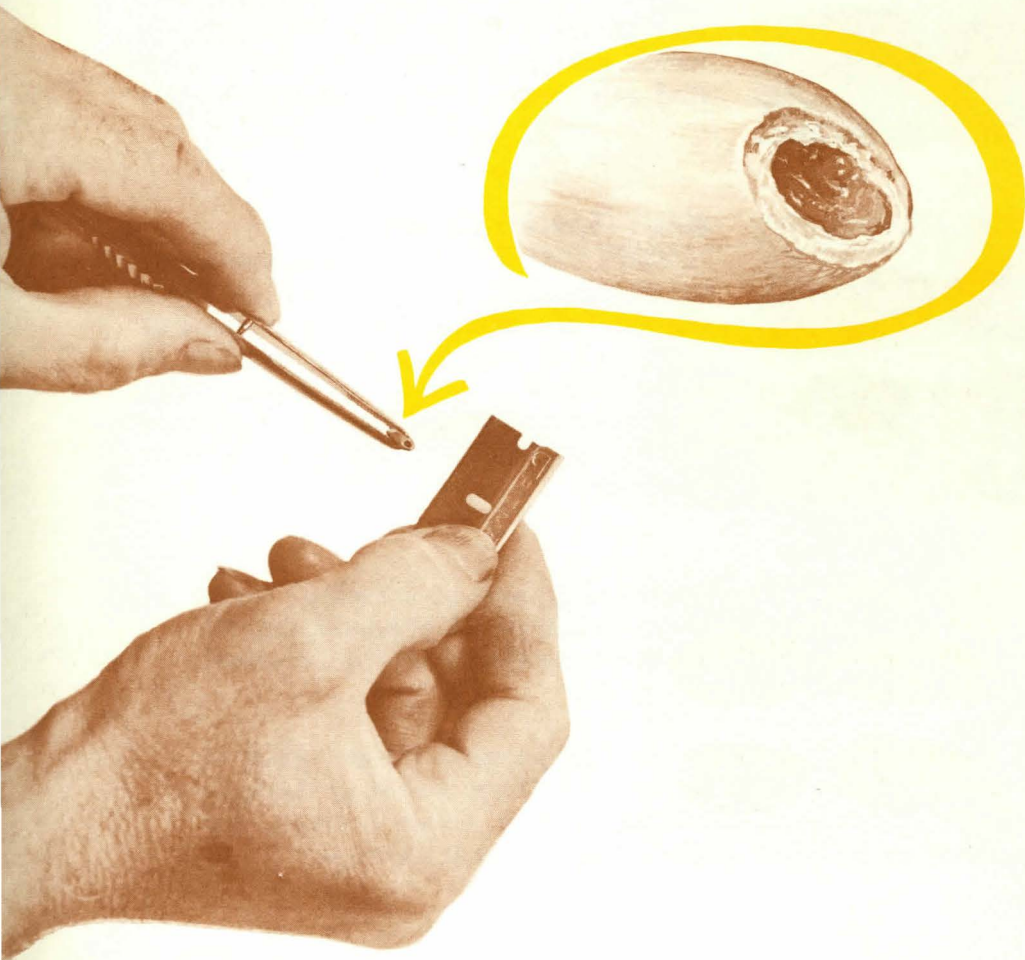
“LIGHT SMUTTY” wheat is wheat which has an unmistakable odor of smut, or which contains balls, portions of balls, or spores of smut, in excess of a quantity equal to 14 balls of average size in 250 grams of wheat. To grade “SMUTTY”, the sample contains in excess of 30 balls in 250 grams or their equivalent.

Damaged kernels are kernels and pieces of kernels of wheat and other grains which are heat damaged, sprouted, frosted, badly ground damaged, badly weather damaged, or otherwise materially damaged.

Samples pictured were selected by Joseph E. Elstner, officer in charge Kansas City District, U. S. Department of Agriculture, Agricultural Marketing Service, Grain Division, and passed on by Board of Grain Supervisors at Chicago.

PROCEDURE FOR IDENTIFYING SICK WHEAT

- Use tweezers and a razor blade or knife.
- Hold kernel crease side down, and the germ end outermost.
- Place kernel in position to *scrape* germ end.
- *Scrape* bran coat off germ end — don't cut it.
- If germ is tan, brown or black, germ is dead and is called "sick" wheat. If germ is cream to white colored germ is considered alive and wheat is sound.



GRADE REQUIREMENTS FOR HARD RED WINTER WHEAT

Maximum limits of —						
Grade	Minimum test weight per bushel	Damaged kernels		Foreign material	Wheats of other classes	
		Total	Heat-damaged kernels		Total	Durum and/or Red Durum
1*	Pounds 60	Percent 2.0	Percent 0.1	Percent 0.5	Percent 5.0	Percent 0.5
2*	58	4.0	0.2	1.0	5.0	1.0
3*	56	7.0	0.5	2.0	10.0	2.0
4	54	10.0	1.0	3.0	10.0	10.0
5	51	15.0	3.0	5.0	10.0	10.0
SAMPLE:		Sample grade shall be wheat which does not meet the requirements for any of the grades from No. 1 to No. 5, inclusive; or which contains more than 15.5 percent of moisture; or which contains stones; or which is musty, or sour, or heating; or which has any commercially objectionable foreign odor except of smut or garlic; or which contains a quantity of smut so great that any one or more of the grade requirements cannot be applied accurately; or which is otherwise of distinctly low quality.				

*The wheat in grades No. 1 and No. 2 of this class may contain not more than 5.0 percent and in grade No. 3 not more than 8.0 percent of shrunken and broken kernels.

SUB-CLASSES: Class IV Hard Red Winter Wheat shall include all varieties of hard red winter wheat and may include not more than 10.0 percent of wheats of other classes. This class shall be divided into the following three subclasses:

1. Dark Hard Winter Wheat. The subclass Dark Hard Winter Wheat shall be Hard Red Winter Wheat with 75 percent or more of dark, hard, and vitreous kernels.
2. Hard Winter Wheat. The subclass Hard Winter Wheat shall be Hard Red Winter

- Wheat with 40 percent or more but less than 75 percent of dark, hard, and vitreous kernels.
3. Yellow Hard Winter Wheat. The subclass Yellow Hard Winter Wheat shall be Hard Red Winter Wheat with less than 40 percent of dark, hard, and vitreous kernels.

"Prepared by Norman V. Whitehair, Extension Economist in Grain Marketing, Kansas State College in cooperation with James R. Enix, Regional Wheat Marketing Specialist, Federal Extension Service, USDA.

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